EARTH SCIENCES (M.S.)

https://ceps.unh.edu/earth-sciences/program/ms/earth-sciences

Description

This program is intended for students with interests in all aspects of the Earth sciences, including atmospheric sciences, hydrology, geochemistry, geology, oceanography, with particular emphasis on geospatial analysis of earth systems, regional climate analysis of ocean and atmosphere, instrumental records of earth processes, earth observing systems and interpretation, modeling of earth processes and changes, quantitative analysis of Earth system dynamics, and other interdisciplinary topics related to the earth sciences.

Admission Requirements

An applicant to the M.S. program is expected to have demonstrated competency in the following college courses: one year each of calculus and chemistry and two semesters of physics and/or biology. In addition, the applicant is expected to have an undergraduate degree or equivalent in geology, chemistry, physics, mathematics, computer science, engineering, or the biological sciences. Students lacking some background in a particular area may be admitted provided they are prepared to complete courses, without graduate credit, in which they may be deficient. The program of study a student wishes to follow and the student's undergraduate major determine the level of preparation necessary. The preparation of each student is determined before the beginning of the first semester in residence in order to plan the course of study. Each entering student is assigned an academic adviser to assist in planning a program of study.

Requirements

Degree Requirements
Thesis Option

Students in the thesis option must satisfactorily complete at least **30 graduate credits**, which include the credits accumulated in the core curriculum. Students in this option must complete a master's thesis (6 credits) and give an oral presentation of the results.

Non-Thesis Option

Students in the non-thesis option must satisfactorily complete at least **34 graduate credits**, which includes the core curriculum, a 2--credit directed research project (ESCI 898 Directed Research), and a written and oral presentation of that research.

Earth Sciences

All students will select a total of three core courses from two core areas (methods and disciplinary courses) to complete as part of the program. Any course used to satisfy core requirements must be a graduate-level classroom course of at least 3 credits offered by the Department of Earth Sciences. Independent study courses may not be used to satisfy core requirements. Within one year of enrollment, students must complete and receive their advisor's signature on a Coursework Approval Form, which lists the student's planned coursework. Students are also required to take ESCI 997 Seminar in Earth Sciences and ESCI 998 Proposal Development, preferably within the first year of enrollment.

The core curriculum for Earth Sciences normally includes:

Code	Title	Credits
Required Courses		
ESCI 997	Seminar in Earth Sciences (first year)	1
ESCI 998	Proposal Development (first year)	1
Earth Science Core Courses		
Select three Earth Sciences courses from two core areas (methods and disciplinary courses)		9-12
Master's Thesis or Directed Research		
Select from the following:		
ESCI 899	Master's Thesis	6
ESCI 898	Directed Research	2
Elective Courses		

Additional electives are to be selected from graduate level courses in the department and/or from graduate level courses in related disciplines outside of the department (e.g., civil and environmental engineering, natural resources, chemistry, mathematics and statistics, and computer science). More detailed information is available from the department.

Degree Plan

Sample Degree Plan

This sample degree plan serves as a general guide; students collaborate with their academic advisor to develop a personalized degree plan to meet their academic goals and program requirements.

First Year		
Fall		**Credits**
Core Curriculum 1 Course		4
Elective I Course		3-4
ESCI 997	Seminar in Earth Sciences	1
	Credits	**8-9**
Spring		
Core Curriculum 2 Course		4
Elective 2 Course		3-4
ESCI 998	Proposal Development	1
	Credits	**8-9**
Second Year		
Fall		
Core Curriculum 3 Course		3-4
ESCI 899	Master's Thesis (or Elective for non-thesis option)	3-4
	Credits	**6-8**
Spring		
Elective 3 Course		3-4
ESCI 899 or ESCI 898	Master's Thesis or Directed Research	2 or3
	Credits	**5-7**
	Total Credits	**27-33**

Accelerated Master's

This graduate program is approved to be taken on an accelerated basis in articulation with certain undergraduate degree programs.

General Accelerated Master's policy, note that some programs have additional requirements (e.g. higher grade expectations) compared to the policy.

Please see the Graduate School website and contact the department directly for more information.

Student Learning Outcomes

Program Learning Outcomes

Students graduating with a MS in Earth Sciences should achieve the following learning outcomes:

Core Knowledge

- Demonstrate a foundation of knowledge in Earth sciences that results in expertise and an understanding of the topics in the student specialty.
- Demonstrate basic knowledge of how the processes within this field interact with other related disciplines.
- Demonstrate specialized knowledge of a field within Earth sciences sufficient to conduct substantive supervised research.

Research Methods and Analysis

- Identify and demonstrate knowledge of a range of qualitative and quantitative methodologies typically used in Earth sciences research.
- Discover and critically read published research in the Earth sciences and related fields of mathematics, statistics, physics, chemistry, and biology.
- Frame empirical research and/or theory guided by prior knowledge.
- Implement a rigorous study using appropriate methods, measures and techniques.
- Critically evaluate and systematically analyze data to reach appropriate findings and interpretations

Scholarly Communication

- Structure a coherent argument that rigorously presents and evaluates evidence to support claims.
- Review and cogently synthesize relevant literature.
- Write at a level and in a style of English consistent with that found in leading academic journals.
- Understand and properly use styles of citing, referencing, and formatting found in leading academic journals.
- Clearly convey research findings through oral presentation supported by appropriate digital media.
- Cogently summarize research and its significance to non-specialist audiences.

Professionalism and Pedagogy

- Prepare manuscripts that meet the standards of academic and research journals and respond appropriately to recommendations for revision.
- Demonstrate collaboration, leadership and teamwork.
- Create a welcoming environment that is supportive, inclusive and equitable.
- Make effective contributions to university, community and professional service.
- Communicate effectively to groups in a lecture format.